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LOCUST IMPACT ASSESSMENT IN NORTHERN AFGHANISTAN FINAL REPORT

Report for Project NO. RAMP-CLIN 0002-JO# 31-0004-GOAL

RAMP/GOAL

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AFGHANISTAN

GENERAL INFORMATION

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LOCUST IMPACT ASSESSMENT IN NORTHERN AFGHANISTAN- SUMMARY FINDINGS

These findings are based on field surveys of 120 villages in four Northern Provinces and village leaders' focus group interviews. These findings should not be assumed to be representative of other parts of Afghanistan.

By G. Maxwell

Contents of the report

CROP PRODUCTION

Most Northern provinces in Afghanistan are characterized by a diverse ecology and climate which makes it possible to grow most temperate fruit crops and various tropical spices, as well as a wide variety of cereal crops including wheat, rice and barley. However, the poor communication facilities (rural roads, telecommunications) makes it difficult to develop its potential and contributes to the isolation of the region from Afghanistan's major trading centres. Rural and semi-rural areas in Afghanistan remain highly dependant on subsistence agriculture for household consumption. A large segment of the population, mostly in rural areas, lives below the poverty line.

The Northern part of the country is the region most affected by the economic difficulties of Afghanistan. This region has had a decade of drought with the annual rainfall being between 100 and 300 mm, except in 2003 when the average rainfall exceeded 300mm. In many parts of the Northern region, the availability of an adequate supply of water for human and livestock consumption, and for crops, is a major recurring problem for most families. Livestock husbandry, particularly cattle, traditionally holds a major economic and social place in the region as it provides some two-thirds of household income. However, animal numbers fluctuate widely from one year to another as most people tend to invest their savings in livestock in good years while the sale of animals acts as a cushion during years of poor harvest, like in 2004.

ASSESSMENT OF CROP LOSSES

In the Northern provinces of Kunduz, Baghlan, Samangan and Bulkh, crop (wheat) production has fallen considerably this year compared to the 2003 crop season. Kunduz, Baghlan and Kholm district of Bulkh province were the worst affected areas. The survey data shows a decline of 45 percent in wheat production in Kunduz and Baghlan, and Samangan and Bulkh wheat production fell by 25 percent. The wheat production was affected by the combination of locusts and drought. According to our survey wheat suffered greatly as a result of locust damage. Overall, wheat losses due to locust damage have been estimated to be 50 percent, 40 percent, 30 percent and 20 percent respectively in Baghlan Province, Kunduz Province, Bulkh Province and Samangan Province.

LIVELIHOOD SECURITY

The food security situation is precarious for households in Baghlan, Kunduz, Bulkh and Samangan Provinces, where wheat crops were mostly affected by the combination of locust attack and poor rainfall, leading to the loss of much of the wheat crop and a sharp reduction in the output of other crops such as sweet melon. In most of the severely affected areas, households are increasingly eating poverty food, such as dried bread. Household migration has been reported to be in search of work in the main cities of the North.

Reflecting poor pasture quality that was seriously affected by both locusts and poor rainfall in many districts, animals are also in poor condition. As early as July, some households started selling substantial numbers of livestock in order to avoid losses, and to meet their subsistence needs during this difficult inter-season period.

The term Impact *refers to a set of program results that occur at the beneficiary level and that can be directly attributed to program activities, rather than external factors. More typically here, impact refers to the improvement in the economic and personal well-being of farmers who received services though the 2004 Locust Mitigation Campaign carried out by FAO, MAAH and GOAL(Irish-international humanitarian NGOs).*

1. Introduction

Moroccan locust (*Dociostaurus maroccanus*) infestations have been occurring annually in Northern Afghanistan since the 1990's. The size and intensity of the infestations vary from year to year and from area to area in Northern Afghanistan. Moroccan locust species are usually found in semi-arid steppe and semi-desert climates. In recent years they have appeared in countries such as Morocco and Algeria in Northern Africa, and Turkey, Iran, Iraq, Afghanistan and Uzbekistan in Central Asia.

In the 1990's FAO (UN Food and Agriculture Organization) introduced a mechanical locust control in Afghanistan. This was a community control mechanism whereby farmers were trained to monitor where the eggs were being laid and to kill the vulnerable young hoppers as they emerged from the ground, by digging trenches and burying them. Then, in 2002, due to the size of the locust outbreak and the operational demand of man power, the mechanical control became difficult to operate. The FAO egg beds survey report in 2002 estimated that over 400,000 hectares (ha) of rain fed wheat and over 190,000 hectares of irrigated wheat would be at risk from locust attack in 2003 (August 2003. says Andrew Harvey, FAO Coordinator of locust campaign in Afghanistan). However, the campaign only treated 123,000 hectares of locust infested areas, mainly with conventional pesticides. A similar trend of locust attack was expected in 2004.

The primary **objective** of this locust impact assessment study was to ascertain whether the 2004 Locust Mitigation Campaign was successful in controlling locusts in five Northern Afghanistan Provinces (Bulkh, Samangan, Kunduz, Baghlan and Takhar), and to compare this year's campaign with that of past years. However, Takhar province is not included in this assessment report due to security problems (furthermore, the effected area was small compared to the other provinces).

The locust impact assessment survey was carried out from May 22 to July 1 2004, to assess the damage caused by Moroccan locusts to wheat crop in four Northern Afghanistan Provinces (Bulkh, Samangan, Kunduz and Balghan), to assess the 2004 Locust Mitigation Campaign success at the beneficiary level, and to evaluate its implications on the household food security situation.

2. Methodology

The provincial selection was based partly on the density of locust egg-beds survey carried out by FAO at the end of the 2003 campaign, which identified the provinces of Bulkh, Samangan, Kunduz, Baghlan and Takhar as particularly important provinces for locusts. These provinces also fall into the GOAL Afghanistan operational area. As mentioned above Takhar was omitted for security reasons.

A total of 600 farmers in 120 villages (a random selection of five farmers from each village) were interviewed, and focus group discussions (village elders) were held in each village in order to cover the four provinces (see above map) for the locust impact assessment in 2004. In addition, operators were also interviewed separately where possible.

Twenty experienced GOAL agricultural monitors and an expatriate advisor (Agronomist), who had no connections with the locust mitigation program, were involved in conducting this survey. The team was split into pairs so that as many sub-prefectures and districts as possible could be visited in the four provinces that were effected by the Moroccan locust. In each village one team conducted a focus group discussion (with village elders) while another team was collecting data from the five randomly selected farmers in each village.

At the end of the survey, in addition to the survey questionnaire, both the locust mitigation campaign operators and the beneficiary farmers were asked the following questions:

1. Were the scheduled Locust Mitigation Campaign activities carried out as planned?
2. How well were they carried out?
3. Did the expected changes occur at the program level in terms of improved:
    - Access to the services
    - Quality of services; and
    - Improved use of services by program beneficiaries?

3. RESULTS AND DISCUSSIONS

3.1 CROP PRODUCTION

According to an FAO report (AFG/94/002) in April 1997, Afghanis consume per capita more wheat than other nations (an average of 61 grams per day or 220 kg per year). Rural and semi-rural areas in Afghanistan remain highly dependant on subsistence agriculture for household consumption. The Northern provinces have great potential for wheat and barley production, mainly due to the large variety of soil types and climatic diversity. Nevertheless, natural hazards (drought, locust invasions) combined with old-fashion farming practices limit the production. As a result, reduction of harvests will affect seasonal agricultural labour patterns in rural areas, reducing labour and income opportunities. This places greater economic strains on households that would eventually force them to purchase wheat at higher prices.

Because of irregular collection of agricultural statistics and information about food crop production levels the available data in Afghanistan is only an approximation; monitoring annual crop yields versus amount planted, and losses by locusts, may help predict the livelihood security of households.

Area planted

In Afghanistan, irrigated land produces 93% of total production, whilst rained agriculture produces the remaining 7% FAO report (AFG/94/002)1997).

With regard to the amount of wheat harvested per province, Baghlan has planted the highest area of rained land, followed by Samangan, Kunduz and Bulkh. Baghlan and Kunduz farmers have illegally cultivated more of the Government's common grazing land for wheat production in comparison with Bulkh and Samangan. Furthermore, Samangan province farmers have planted the highest irrigated land this year followed Baghlan, Kunduz and Bulkh with the least area planted.
Traditionally, Afghan farmers have produced their own seed by saving and selecting part of their harvest for the next growing season. This practice is still dominant in most of the Northern provinces. Seed varieties, pests and shortages of fertilizer are frequently quoted as reasons for declining yields.

According to village leaders, access to cultivated land has increased in the past few years. However, data gathered from the farmers shows that cultivated land varies widely from village to village within each province. This is due to several factors; including specific vulnerabilities which have evolved from decades of conflict and political instability. Communities here are characterized by weakened or non-existent institutions, high susceptibility to violence, forced displacement of people, denial of basic human rights to some groups within the community and high livelihood vulnerability. Locusts and drought have compounded the challenges faced by communities and basic livelihood strategies (agriculture, wage labour, trade and outcome living) have been drastically undermined. The flow of migrants from the south, since the removal of the Taliban regime, is also contributing to each season's extension of cultivated land in the north of the country.

Production (2004 Harvest)

Yield

Year 2003 harvest was reported to be a normal harvest year with farmers averaging from 1 to 1.9 tons per hectare. This year (2004), with poor rainfall at the beginning and at the end of cycle, average wheat yields were between 500 to 900 kg/hectare. During this crop season the situation was exacerbated by locusts, which destroyed wheat in several districts in each province.

Province	Rained yield (tons)		Irrigated yield(tons)	
	Village elders 2004	Normal year	Village elders 2004	Normal year
Baghlan	386.8	696.2	159.4	387.5
Kunduz	410.6	757.3	85.7	325.7
Bulkh	508.6	680.6	202.0	548.4
Samangan	152.8	240.4	73.1	198.4

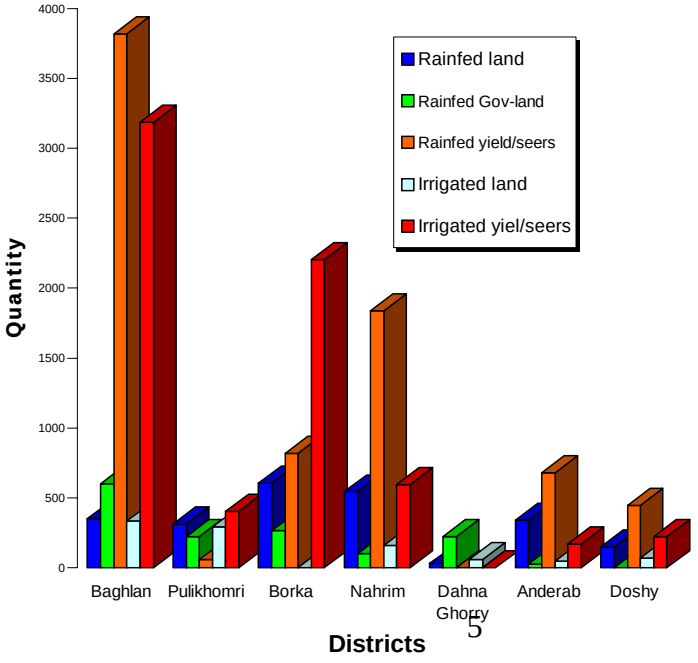
According to data from village elders, in Baghlan province rained farmers' total output (wheat) is estimated to be 386 tons, against 696 tons in normal years: a drop of about 44 percent. Referring to the table above, Kunduz, Bulkh and Samangan wheat output fell by 46, 25 and 25 percent respectively. In irrigated land the output fell by 31, 32, 51 and 61 percent in Baghlan, Kunduz, Bulkh and Samangan respectively.

3.2 ASSESSMENT OF CROP LOSSES

Wheat production has fallen considerably this year compared to the 2003 crop season. As shown in the table on the right, Baghlan province was the worst affected. There was a 50% loss in wheat production by locust damages. Kunduz, Bulkh and Samangan provinces were also affected by the combination of locusts and drought. Overall losses due to locust damage in rained areas have been estimated to be 40%, 30% and 20% respectively in the Balghan, Kunduz, Samangan and Bulkh provinces. In comparison, the overall losses by locust and drought damage in irrigated land have been estimated to be 53%, 42.3%, 28.4% and 23% respectively in Baghlan, Kunduz, Bulkh and Samangan.

Province	Rained yield (tons)		Irrigated yield (tons)	
	Farmers 2004	Normal year	Farmers 2004	Normal year
Baghlan	362.3	731.1	2490.0	9462.0
Kunduz	244.7	377.3	2356.8	8141.5
Bulkh	475.9	680.6	5050.5	13708.5
Samangan	161.7	204.4	2488.0	5909.0

Baghlan province: District's land and yield.



4. ANALYSIS BY PROVINCE

4.1 BALAGHAN PROVINCE:

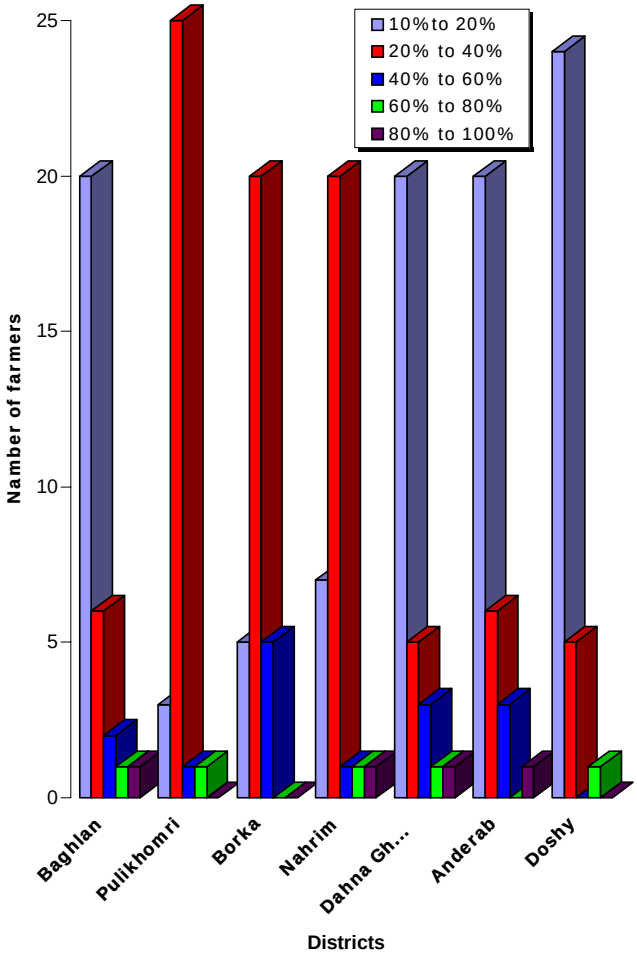
AREA PLANTED AND YIELD

Most Baghlan districts suffered from both locusts and drought. However, wheat was more affected by the drought during the months of March and April, which were particularly dry. In addition, several replantings were done between December to February in many areas, but without success.

The beginning of the season seemed a promising one with heavy rain, similar to the previous year when the farmers benefited from abundant rain fall.

The graph on the right compares Baghlan province district rained land, irrigated land and the yield harvested from the both irrigated and rained land. As shown on the graph, Baghalan district has the highest irrigated land and illegal Government rained land, whereas Borka has the highest rained land, in comparison with the rest of the districts. Furthermore, the irrigated land of Baghlan district produces 22 tons of wheat, whereas rained land farmers produce 26 tons. In comparison the other six districts together produce 26 tons and 22 tons of wheat in the irrigated and rained land respectively. This shows that Baghalan district has suffered less from both locusts and drought in comparison with the rest of the province districts.

Baghlan province: An estimated wheat loss by locust damages



Assessment of Crop Losses

In the districts described above in the province of Baghlan, food production has fallen considerably this year compared to the 2003 crop season. According to the village leaders, wheat production fell by 46 % in Baghlan, Pulikhomri by 39 %, Borka by 55%, Nahrim by 70%, Dahna Ghory by 75%, Anderab by 46% and Doshy by 56%.

Most of the districts' crop production was affected by the combined action of locusts and drought; and the wheat crop suffered greatest locust damage. As shown in the graph on the left, almost 66% of the total farmers (150 people) claimed damages of 10% to 20%, whereas 58% claimed damages of 20% to 40%, 10% claimed damages of 40% to 60% and less than 6% claimed damages of 60% - 80% and 80% - 100% by locusts.

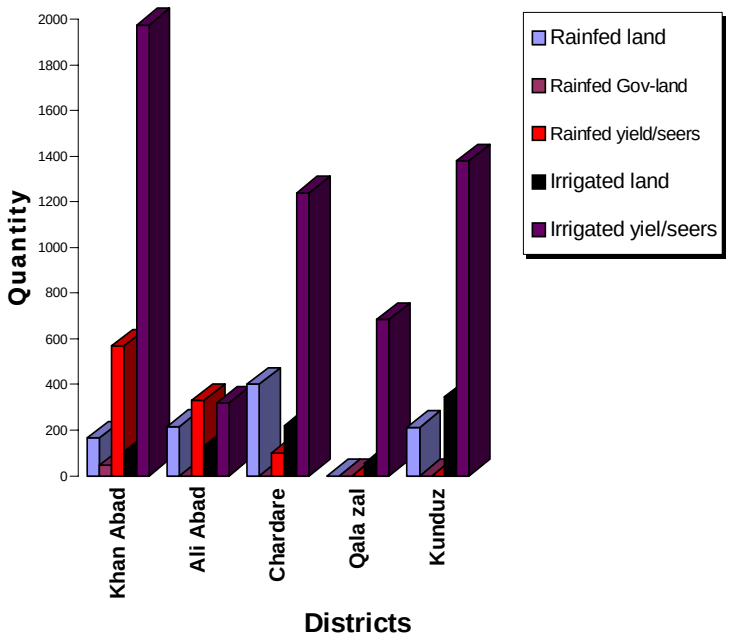
4.2 KUNDUZ PROVINCE:

The graph on the right compares Kunduz province district's rained land, irrigated land and the yield harvested from both irrigated and rained land.

As shown in the graph Kunduz district has the highest irrigated land, followed by Chardare, Ali Abad, Khan Abad and least with Qala zal. With Khan Abad harvesting the highest irrigated land wheat, followed Kunduz, Chardare and Qala zal.

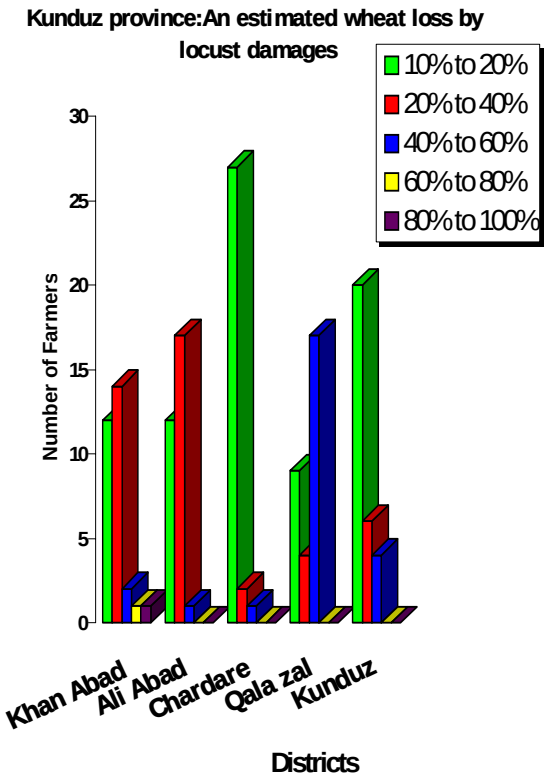
In the province's rained land, Chardare has the highest rained land followed Ali Abad, Kunduz, and

Kunduz province: District's land and yield



Khan Abad having the least rained land. However, the wheat yield results were reversed: Khan Abad had the highest rained wheat yield followed by Ali Abad and Chardare.

However, despite its potential, Kunduz province is classified as a low-income food deficit province. Following a steady decline of the economic situation of the country, about 75 percent of Kunduz' population, mostly in rural areas, live below the poverty line.



Assessment of Crop Losses

Kunduz province experienced irregular rainfall and locust attacks but according the survey data the effect of the latter on the crops was more pronounced.

As shown on the graph to the left, 53.3% of the total farmers claimed losses of 10% to 20%, 28% claimed losses of 20% to 40%, 16.7% claimed losses of 40% to 60% and less than 2% claimed losses of 60% - 80% and 80% - 100% by locusts.

Locust invasions have occurred in most districts of the province from March onwards, continuously almost until harvest time. Output or yield was reduced substantially following the attacks, exacerbated by poor rainfall, particularly in Chardare, Kundus and Ali Abad districts.

The poor harvest has compelled farmers to sell some of their livestock to buy food. Others had to look for manual work in other sectors or move to the main cities.
Wheat growing is a very important activity in this province, but the continuous presence of locusts may limit developments for several years to come. However, about 30% of the population may suffer food shortages in the next few months and some children are already showing signs of malnutrition.

4.3 SAMANGAN PROVINCE

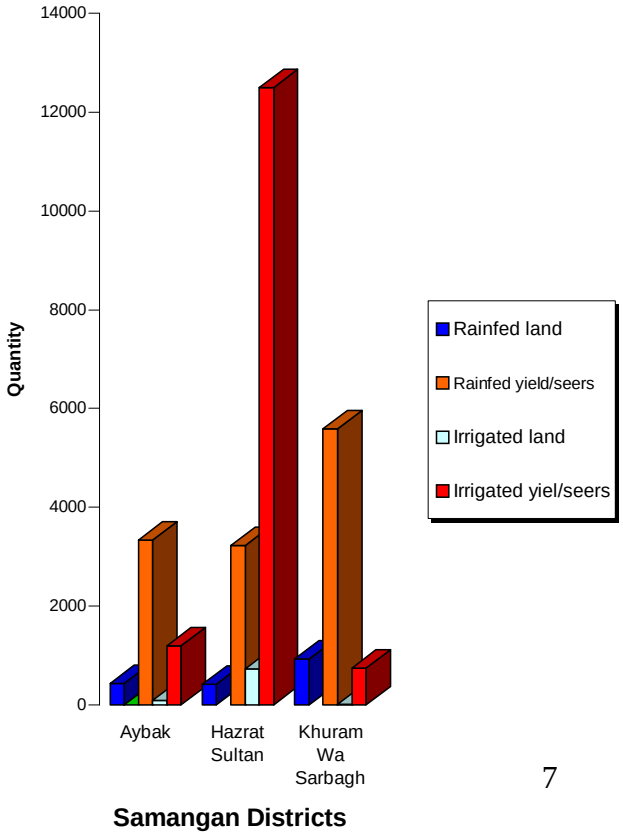
The graph on the right compares Samangan province's districts' rained land, irrigated land and the yields harvested from both irrigated and rained land. However, due to the security situation in Afghanistan we could not conduct our survey in Dari-e-suff and Ruyi Du Ab districts and some villages in Khuram wa Sarbagh.

As shown on the graph, Aybak and Hazrat Sultan have higher irrigated land, while Khuram wa Sarbagh has the highest rained land within the three districts. As a result, Khuram wa Sarbagh has the highest rained yield in comparison with Aybak and Hazrat Sultan.

On the irrigated land, Hazrat sultan has produced the highest amount of wheat among the three districts.

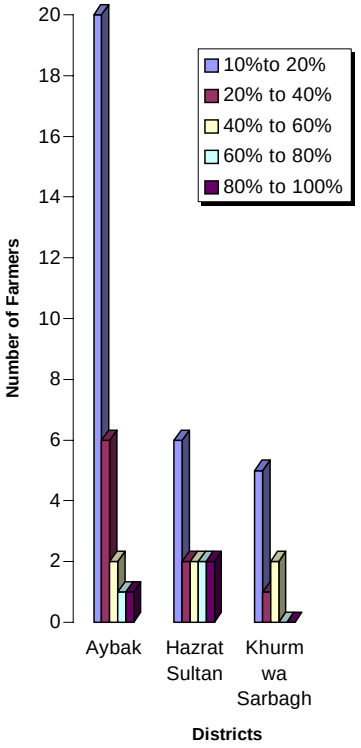
Samangan province was not so affected by drought this year in comparison with the other provinces. Rainfall was regular during the early months of the season. However, in certain areas within the province, wheat have had some difficulty in

Samangan province: District's land and yield.



reaching maturity due to a slight deficit in rainfall. Without the destruction caused by locusts, this year's harvests would have been exceptionally good in many parts of Samangan province.

Samanga province: An estimated wheat loss by locust damages



Assessment of Crop Losses

Samangan province experienced irregular rainfall and locust attacks but according the survey data locust invasions have had little effect on the crops this year (2004) in comparison with 2003 and 2002.

As shown on the graph to the left, 34.4% of the total farmers (90 people) claimed losses of 10% to 20%, whereas 10% claimed losses of 20% to 40%, 6.7% claimed losses of 40% to 60% and 3% reported losses of 60% to 80% and 80% to 100% respectively by locusts.

Locust invasions occurred in most districts of the province from March onwards, continuously almost until harvest time. The output or wheat yield was reduced substantially following the attacks and poor rainfall, particularly in Aybak and Hazrat Sultan.

Grazing land also sustained quite serious damage following the locust invasion. At the moment, there is hardly any pasture in the province and the cattle are beginning to lose weight. In consequence, distress sales together with low demands may lead to low cattle prices.

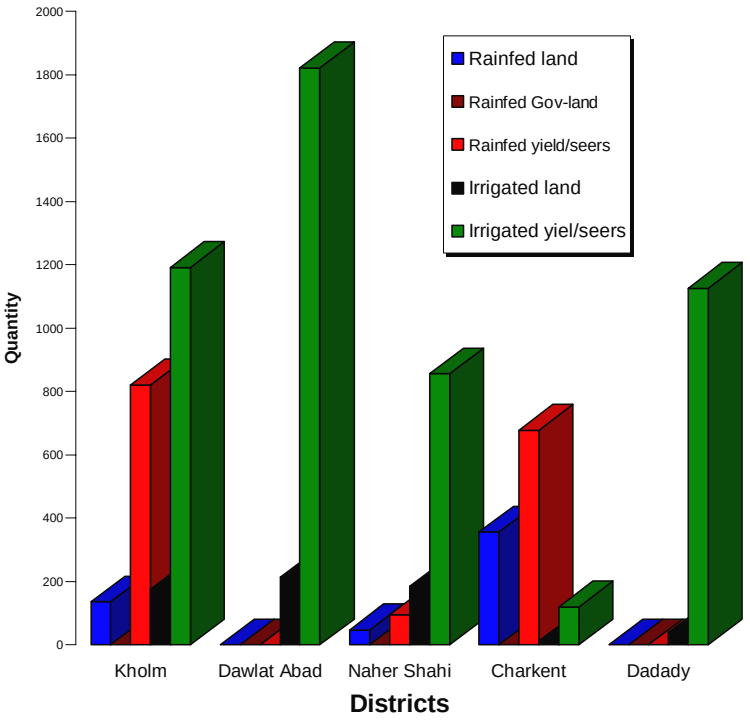
4.4 BULKH PROVINCE

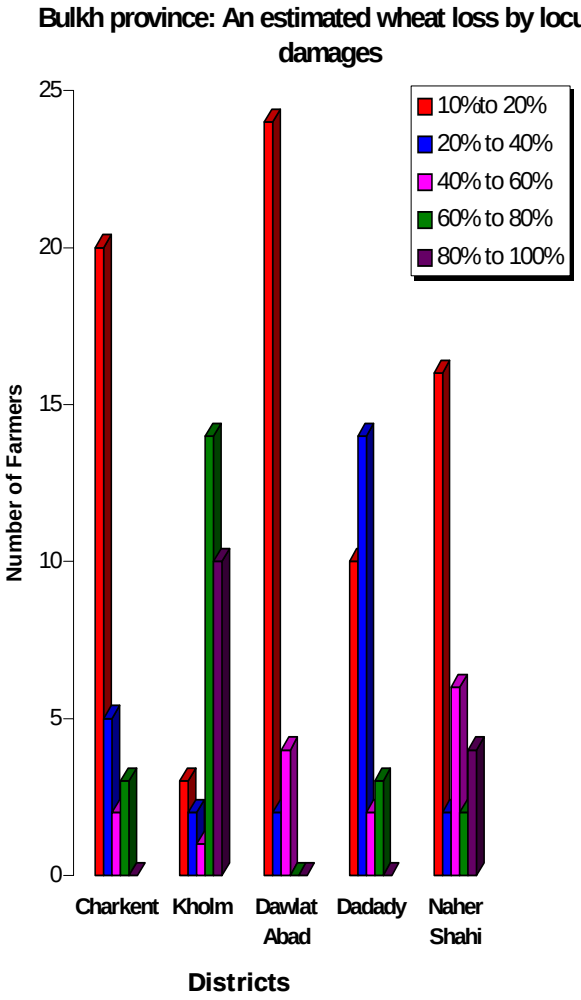
The graph on the right compares Bulkh province's districts rained land, irrigated land and the yield harvested from both irrigated and rained land.

As shown on the graph Dawlat Abad district has the highest irrigated land followed by Kholm and Dahdady. Dawlat Abad has harvested the highest irrigated wheat yield followed by Kholm and Dahdady. On rained land, Charkent has the highest rained land and yields, followed by Kholm. Both Dawlat Abad and Dahdady farmers did not report owning rained land.

Most of the Bulkh province districts were invaded by locusts at the same time as the wheat crop was about to be harvested. Yields were reduced substantially following the attacks, exacerbated by poor rainfall, particularly in Kholm district. The nutritional situation is not a cause for concern and food prices are stable in many parts of the province and have remained at about the same level as last year.

Bulkh province: District's land and yield.





Assessment of Crop Losses

The district of Kholm and part of the Dawlat Abad, Charkent and Dadady districts were the most affected by locust attacks. About 30 percent of wheat was destroyed by locusts alone in this area.

As shown on the graph to the left, 48.7% of the total farmers (150 people) claimed losses of 10% to 20%, 16.7% claimed losses of 20% to 40%, 10% claimed losses of 40% to 60%, 14.7% reported losses of 60% to 80% and 9.3% reported losses of 80% to 100% by locusts.

Most of the farmers that reported 60% to 80% losses from locusts were from Kholm and Naher Shahi. In addition, locust invasions have also badly affected grazing land. In consequence, livestock suffered seriously. Farmers were very worried and reluctant to continue with their farming activities.

The situation has provoked significant migratory movement among Bulkh province. People are moving to the main cities in search of seasonal work. The food security situation is critical in several areas in Bulkh province where preliminary signs of child malnutrition can be observed.

5. Livelihood Security:

The food security situation is precarious for the households in Baghlan, Kunduz, Bulkh and Samangan provinces, where wheat was mostly affected by the combined effect of locust infestation and poor rainfall, leading to the loss of most of the wheat crop and a sharp reduction in the output of other crops such as sweet melon, barley and cotton. In most of the severely affected areas, more and more households are eating poverty food. Household's migration has been reported to be in search of work in main cities in the north.

Reflecting the poor quality of pasture which was seriously affected by both locusts and poor rainfall in many districts, animals are in poor condition. As early as July some households started selling substantial number of livestock in order to avoid losses and also to meet their own subsistence needs during this difficult inter-season period.

The survey focal group interviews confirmed that most farmers sell the bulk of their output just after harvest, implying that farm level stocks tend to be negligible. However, this situation is due to the combined effect of locust invasion and drought, and that in case of the persistence of either locust or drought or both, the situation could very quickly become alarming.

6. Farmers' and Campaign operators' feedback:

Reflecting an overall satisfactory outcome of the 2004 locust mitigation campaign, both the campaign operators and all farmers from the Baghlan, Kunduz, Bulkh and Samangan that

had locust invasion this year expressed approval of the way in which the operation was carried out and believe that this campaign was better than last year. Both operators and farmers who have participated in the locusts spray expressed willingness to continue their participation in future campaigns.

The 2004 locust mitigation campaign control main constrains were as follows:

- In some areas access to locust breeding areas was restricted by the presence of mines and unexploded ammunition and shells. As a result, some locusts escaped control laying their egg-pods, which increased the residual population and therefore continuous infestations are likely to occur annually.
- The difficulty of getting to mountainous areas hampers control measures in some places.
- The late start of the campaign due to security problems and bureaucratic delays.

In conclusion, the locust impact assessment survey result has revealed that there was successful improvement in the implementation of the 2004 locust mitigation campaign carried out by FAO, MAAH and GOAL and as a result, the farmers have reported positive impacts from the 2004 campaign. The exceptional drought and high locust populations from the areas that were difficult to access last year, due to mines and mountainous terrain, was the result of crop loss this year in Baghlan, Kunduz and Bulkh. However, the data shows that the locusts were better controlled and overall numbers were reduced. As a result, the number of communities experiencing locust invasion declined in areas that locust attacked last year.

In 2004, getting results from the Locust Mitigation Campaign was very difficult due to security problems in Afghanistan, and was more dangerous during the impact assessment survey. It was relatively a major achievement and reflects the coordinated efforts of those involved in the campaign, especially MAAH, FAO field staff and GOAL agriculture staff.

Furthermore, the locust impact assessment result recommends (although the locust infestation has been significantly reduced by this year's campaign) further locust mitigation campaign in 2005 to prevent higher locust outbreaks in the near future.